平成２３年度 第１回 外国人研究員 講演会報告

外国人研究員ウー教授による講演会を開催しました。大学院生および教員の参加するなか、バイオマスから多孔質炭素材料の合成に関する研究成果が発表された。

日時：２０１１年 ８月１１日(木) １０：００～１１：００
場所： 工学部 中会議室
講師： MingboWu教授(Professor, National Key Laboratory of Heavy Oil Processing, China University of Petroleum,China)
題目： Preparation of High Yield Porous Carbon from Biomass

【講演概要】 As a renewable energy resource, biomass has drawn more and more attention in many research fields. Biomass mainly composed of carbon can be used to prepare porous carbon. However, theyield, density, and strength, three crucial features of porous carbon are low for most porous carbons produced from biomass. Here, two facile methods including hot pressed treatment (HPT) and acid treatment are forwarded in the preparation of porous carbon from biomass. Cellulose was used as model compound of biomass and the pyrolysis kinetics of three HPT cellulose samples was studied by thermogravimetric analysis at linear and stepwise temperature programs. A distributed activation energy model was used assuming two partial reactions. Good fits were obtained at the linear and stepwise temperature programs alike. The results showed that a part of the cellulose remained unconverted and another part only partially converted at the mildest pretreatment conditions. The cellulose was wholly transformed in the pretreatment when either the pressure or the temperature was increased. Both HPT and acid treatment make it possible to prepare cost-effective and high quality porous carbon from biomass.